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ABSTRACT

This overview of current trends in radio program design presents program characteristics which should be considered in the design and production of educational radio programs. A variety of descriptive terms are presented and defined as program variables which can be manipulated to create a desired effect. For each term presented a diagnostic question is proposed, attempting to stimulate producers to inquire about why a given program succeeds or fails. General guidelines are outlined, the use of speakers is discussed, effective studio techniques are defined, and a pedagogical base for program design is presented. (RAO)

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EFFECTIVE EDUCATIONAL RADIO: AN APPROACH TO ANALYZING PROGRAMS

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PREFACE

Although we like to think that decisions about instructional technology are made more rationally than are decisions about fashion, there may be a parallel between changing tastes in clothing and the renewed interest in radio as an instructional tool. Television, the "high fashion" of the past two decades, is losing some of its glamour.

A number of commentators, having put fashion aside, find good reason to commend more extensive use of radio for instruction. Wilbur Schramm has stated, "If one were to pick out an instructional medium that could be recommended for more attention . . . by all countries that feel themselves in need of rethinking their educational systems, then one might think first of radio." Philip Coombs has noted that there is a "conspicuous failure in not further exploiting the economic educational potential of radio." Emile McAnany has said that radio's advantages make it "one of the most promising resources that most countries have" for the development of their rural areas. And John Balcomb, after attending a recent UNICEF communication workshop observed, "Everyone agreed that at present radio is the only mass medium worthy of the name in most developing countries."

After a twenty-five year lull in radio publications, it is propitious to take a fresh look at radio, a look which benefits from two decades of progress in pedagogy, communication science and psychology, and which makes reference to some of the outstanding radio projects now operating. At the same time, it is appropriate to note the potential fit between low

cost, "low technology" approaches to educational radio and the growing concern for "deprofessionalization" and "client participation" in rural education. Miniaturization and solid state technology have made the transistor radio ubiquitous and have rendered other types of sound recording and broadcasting equipment economical, simple to operate and virtually maintenance free. In these circumstances, it is not difficult to envision good, listenable educational radio being produced by and for local people.

This paper aims to present the state of the art of radio program design. Because there are no easy formulas for designing effective educational programs, the paper should serve to stimulate the creative powers of its users. The users I have in mind are all those involved (or potentially involved) in the design and production of educational radio programming. These could include subject matter specialists, development planners, scriptwriters, studio directors, and the generalists we call "radio producers." Anyone who makes decisions about the form and content of radio programs should find something of value here.

The state of any art is constantly changing. For this reason I hope that you will write to us with your own ideas about improving radio programs. Nothing would please us more than to promote the sharing of information that will eventually find its way into a new and improved treatment of our subject.

INTRODUCTION

It is not enough to describe a program by its format. Knowing that a program is a panel discussion, for example, tells us nothing about its entertainment value, its relevance, its credibility, and so on. We need a set of terms by which to describe the myriad aspects of any given program, no matter what its format. Eventually, if we are to make steps toward improving educational radio communications, these descriptive terms must be understood as elements in explanatory concepts--concepts which link program variables to audience impact.

Each term can be viewed as a program characteristic or variable--something for the producer to manipulate to create a desired effect. Furthermore, each variable should suggest a question. For the variable "length" or "duration" we might ask if people seem tired at the end of the program. For the variable "pace" we might want to know what percent of the audience would like the speaker to slow down or offer more examples to clarify his point. My hope is that conscious knowledge of these variables will stimulate producers to ask more and better questions about why a given program succeeds or fails.

Wherever possible, I base my comments and advice on empirical research studies. You will notice that very few studies have been done on radio. By the time financing became available for media research, radio had been overshadowed by television, which explains why there is so little empirical evidence about causal relationships between audio presentations and audience outcomes. Fortunately, however, most television re-

search is really radio research. That is, most of the independent variables tested have little to do with the visual component of television. Studies have been done on level of difficulty, use of humor, degree of complexity, prestige of speaker, amount of learner involvement, the use of silence, and so on. All of these characteristics are common to both audio and video presentations.

Given the fact that research findings serve more to raise issues than to provide simple solutions, I do not think radio educators should feel uncomfortable in basing generalizations about audio program design upon film and television studies. Furthermore, our goal is not to look for "laws of radio," but rather to suggest tentative guidelines. In the pages which follow, some such guidelines, based on a mixture of research, experience, and intuition, are presented.

GENERAL GUIDELINES

Satisfying Audience Needs

Listeners have physical, emotional, intellectual and spiritual needs. Programs which address emotional needs are usually the most compelling. The best way to address emotional needs is to provide a vicarious experience for the listener through drama--sung, acted, or narrated. Avoid the pitfall of thinking that information related to the basic needs will be interesting. This is rarely true. The best strategy is for the program itself to satisfy a need, rather than for the program to refer the listener elsewhere to satisfy his need.

Diagnosis. What specific listener need does this program satisfy? How do you know? Does the listener derive pleasure from the program itself? Does he laugh, sigh, deduce, empathize?

Timeliness

Radio messages can be directly or indirectly related to events which have recently caught the attention of the listener. Such messages are timely. Some of the interest value of these related events is transferred to the "timely" radio message. For example, a health message given by an Olympic runner will be more timely and effective if given shortly after the games. Messages about the effects of new seed types might best be broadcast at planting time.

Diagnosis. How does this program relate to recent national/local events? Is there another, more vital event with which it might be

described? How recent are the related events?

Responsiveness

Responsiveness here refers to the way a program takes account of how the audience is pre-disposed toward the message of a program. It is especially important to know audience predisposition if the producer is trying to change the attitude of the listener in regard to some concept or practice. The listener may have positive, negative, mixed, or no opinions on a certain subject. The program strategy would differ in each case. For example, if listeners are positively disposed toward innoculating chickens, it might be better to design a program to dispel lingering fears than to design a dramatized success story which presents already known benefits of innoculation. The listeners may be convinced that the procedure works sometimes, but will it work when they try it? If this is the major concern, think of an approach that can deal with it.

Diagnosis. What are the typical listener's views about what I want to say? How does my program take account of this view? What is another way of designing this program? Would the second way be better or worse at addressing the listener's predisposition? Why?

Multipliers

Every mass communicator hopes that listeners will spread to non-listeners what they have heard on the radio. In fact, at times a producer may target a program at one group, let's say children, with a message that he wants another group, let's say parents, to receive. An

example is the way breakfast food is sold in the United States. Advertisements are aimed at children, who in turn influence parents to buy cereal. In some cultures agricultural advice has been directed at women, who in turn persuade their husbands. In Tanzania, listeners were asked directly to enlist the cooperation of non-listeners.

Diagnosis. Is this program likely to cause the listener to share what he has heard with someone else? How might it be redesigned to increase that likelihood?

Realism/Credibility

The issue here is whether actors or professional announcers can match the communicative power of natural, unrehearsed speech. In some parts of the world, a polished professional voice can be believed; in other parts it cannot. In media-saturated countries the frequency of man-on-the-street interviews and testimonials is increasing, largely because of the declining believability of professional speakers.

Diagnosis. What percent of the audience will believe that the speakers is telling the truth? To what extent is the speaker telling of his own experience?

Localness

Radio has an advantage over television in that its relatively low-cost transmitters can be placed in many localities. What is more appealing than hearing a familiar voice being broadcast over radio? Localness means the extent to which familiar voices, music and events are heard. In the

trade-off between localness and professionalism, localism can win. A good example of this was in Tabacundo, Ecuador (Hoxeng, 1976).

Diagnosis. What portion of the program is presented by persons whose voices are like those of a typical listener? What portions of the examples, music, concepts or messages could have originated from the listening area?

Length/Duration

How long should a program be? There is of course no simple answer. With a highly motivated audience and/or skilled producers, the program can be long--maybe thirty minutes. Otherwise it probably should not be more than fifteen minutes. Content is another factor to consider. The more information per minute, the shorter should be the program. It is better to leave an audience wanting more than they got rather than less.

Diagnosis. What portion of the listeners pay attention during the first quarter of the program? the last quarter? In the setting where listening occurs, how many times is the listener likely to be distracted during the program?

Listener Participation

People can fall asleep while watching television or listening to the radio. But it is rare for someone to fall asleep in the middle of a conversation with a friend. The reason? Conversation requires the listener and the speaker to participate physically, through movement of mouth and hands, and mentally, through interpretation of what the other person says

and preparation of what to say next. Radio can be like a conversation between two persons. An effective program will require the listener to think by asking questions posing problems, and so on. Programs for children can even require the listeners to perform physical exercises.

Diagnosis. How many times does this program invite the listener to participate, either mentally or physically?

Attention Arousal

Every professional entertainer knows that the first minute of his presentation is the most important. Radio broadcasters aiming at a non-captive, casual audience should be doubly aware of this. Minute one is the time of decision for the listener: "Will I continue listening to this station or will I listen to something else?" What can a producer do in that first minute to grab the attention of the listener? Typical solutions include emotional dialogue, music, provocative questions, and peculiar voices. Information related to the theme of the show should be avoided, since it takes the listener at least thirty seconds to follow what is being said.

Diagnosis. Is the first minute of the program different from the rest?

"Liveliness"

"Liveliness" is difficult to define, but highly recommended by experienced producers. Commercial announcements are probably the liveliest moments on the air. Educators should study these commercials with an eye

to adapting some of the techniques. Listeners can hear smiles on the faces of radio announcers. They can feel enthusiasm transmitted electronically.

Diagnosis. Is the program serious, deadly? Do the speakers seem to care about what they say? Do they speak naturally, with enthusiasm, or carefully, as if reading?

Liking and Learning

A popular notion these days is that increased entertainment value will enhance attention and learning. The little research on this notion is inconclusive. Lumsdaine (1958) and McIntyre (1954) both found that adding humor to instructional films failed to produce greater learning. And yet, one of the participants reported small but significant gains in University of California classes taught by regular professors who were aided by a professional comedy writer. Anderson (1976) observed heightened attention in the presence of alliteration, rhyming, and "auditory change."

It seems self-evident that an "interesting" program would teach better than an uninteresting program. Twyford (1951), however, presents counter evidence. Sometimes the interesting feature of a program obscures the intended message (Gallagher, 1975b). Apparently, there is no predictable relationship between liking and learning. Of course, a program must be interesting if a casual, at-home audience is to learn from it. Otherwise, people simply will not listen.

Diagnosis. What percent of the listeners consider the program to be interesting?

Formats

Regarding the use of entertaining formats, the research findings are equally inconsistent. VanderMeer (1953) found that a lecture embellished with music and sound effects was no more effective than a plain one. On the other hand, Theroux (1975) reported that randomly selected groups of students learned forty percent more about nutrition from listening to a quiz show presentation than they did from listening to a lecture on the same subject. Comparisons among lecture, panel, dramatic, and problem-solving approaches have not shown a clear advantage for what we might say are the more appealing formats (Gallagher, 1975A). It is clear, however, that educators cannot afford to bore a non-captive, open-broadcast audience. Even the educator's captive audiences are becoming less willing to learn what they do not like.

Contradictory findings on format and entertainment value highlight the need for more precise descriptions of radio presentations. Formats (e.g., lecture, interview) are global variables. Each one needs to be broken down into its component variables before useful generalizations can be made about the impact of any single presentation.

THE SPEAKERS

Number

Generally, the more speakers the better when it is not important for the listener to remember the role or identity of each speaker. In dramatized programs, and panel discussions, a large number of characters will confuse the audience. It is rare for a single speaker to carry effectively an entire program. A few gifted people can do it.

Diagnosis. What might be the effect of adding one voice, subtracting one voice?

Status

There are mixed findings about the prestige of the speaker. Scollon (1956) and T. Skinner (1963) concluded that students did not learn more from a prestigious speaker. Skinner found that students learned more from a speaker whose ability they rated high. Kishler (1951) recorded significant learning gains by students taught by a high status teacher. Hovland (1953) says that a credible speaker can better persuade the listener.

Rogers (1973) studied the persuasive power of speakers who were, respectively, like (homophilous) their audiences and unlike (heterophilous) their audiences. A homophilous speaker is more persuasive in technical matters when that speaker can convince the listener that he is different (heterophilous) in one respect, namely, he possesses superior knowledge in the technical matter.

There is, of course, a role for a special kind of heterophilous

speaker--the celebrity. Employing celebrities may be "worth it" when the product or concept being promoted is of relatively little interest to the listener.

The two extremes work best: persons such as celebrities who are widely known, and common people with no status. Avoid those in between.

Diagnosis. Will people want to hear the speaker because of who he is or what he represents?

Expertise

Experts are probably used too much for educational radio. Not because there is something wrong with technical knowledge, but because the persons who have it are not necessarily effective communicators. At the University of California professional actors used scripts prepared for them by academicians. There is no excuse for allowing a dull speaker on radio.

In Tabacundo, Ecuador an agronomist volunteered to produce a series of radio classes. He prepared the scripts and broadcast them himself. People soon reacted however, saying "We're sure he knows what he's talking about, but the way he says it, nothing stays in our heads." Now a Tabacundo campesino sits down with the agronomist, goes over the script until he is satisfied he understands it, then (the campesino) reads the script on the air (Hoxeng, 1976).

Diagnosis. Is this expert easy to understand and pleasurable to hear?

Personality

Radio producers need to give speakers enough opportunities to express their personalities. Sometimes the subject matter becomes so important that the speaker seems irrelevant--to the producer that is. Personality is expressed when the speaker tells how he feels about what he is saying, doing, etc. If the speaker will be on the air at regular intervals over long periods of time, he should reveal relatively little of himself in any one show, but the cumulative effect will be very attractive to listeners.

Diagnosis. Do you think the listeners know the speaker at least as well as a casual acquaintance?

Intentions

What motivates the speaker's desire to communicate with the audience? The producer should look for speakers who genuinely want to serve the listener, to share what he knows or feels. One way to check the motivation of a person broadcasting to rural listeners is to find out the last time that speaker sat down to eat at the home of a rural villager.

Diagnosis. What direct, person-to-person service has the speaker performed for members of the target audience?

Respect

Broadcasts to rural areas often originate in cities. City people generally are prejudiced toward rural people. If the speaker hopes to avoid condescension, he must respect his audience and avoid the feeling of

superiority that comes from being educated and living in the city. There are only a few people who can speak simply without sounding condescending. The producer must find them. Talking too loudly into the microphone can sometimes signify disrespect.

Diagnosis. Might an adult listener feel that his program is for children rather than for him?

Familiarity

In conversation we are keenly aware of the person with whom we are speaking. We address that person often by his name or by using the word "you." (What do you think of that?") The radio speaker can hold his audience by connecting himself with them through the word "you." ("Now do you see what I mean?") The speaker must talk directly, personally to the listener.

Diagnosis. How many times during the program did the speaker(s) use the word "you" in addressing the audience?

Diction/Clarity

Professional standards for diction far surpass those of everyday live communication. Producers could probably relax these standards with little or no loss of comprehension by the audience. Respect, good intentions, and personality should be considered as the more important qualities of a good speaker.

Diagnosis. What percent of the audience can hear the speaker clearly? If the speaker's diction is below professional standards, does it annoy

listeners? How many?

Delivery Pace

There are no simple formulas for determining the speed at which the speaker should talk. For most topics, normal speech rate (150 words/minute) is acceptable, although people are able to comprehend speech of three times the normal rate. For casual, low-information density shows a faster rate is preferable. Mnemonic speech, a new way of editing and reconstituting speech, illustrates that faster paces can be dramatic and effective if the amount of information being presented is relatively low. As delivery pace increases, so should the amount of repetition.

Diagnosis. Do listeners lose attention because they can't follow, or because they are bored with what they follow?

Delivery Pace Variation

No matter what the average or typical pace of the speaker, it is important that he vary the pace fairly often. This variation should be related to the content. Slow pace when explaining hard-to-understand points. Fast pace when reviewing. Slow pace for dramatic emphasis. Fast pace for sections with low information/fact level.

Diagnosis. How many times during the program did the speaker change his pace.

Formality

Formal programs (e.g. a panel discussion guided by a moderator who

enforces rules about the length of time each person can talk) generally are less personal, less spontaneous, less lively and less credible. They are more dignified, more precise, and more restrained. Occasions for formality on radio are rare, reserved primarily for solemn events. Informality is generally preferred by listeners.

Diagnosis. Do speakers ever interrupt each other? (If they don't, the program is probably formal.) Do they use familiar forms of address?

Introduction of Speaker

The audience's expectations of a speaker are shaped by the kind of introduction he receives. Better introductions focus more on provoking curiosity about what the person may say than on describing his or her life history. Other key elements in an introduction are those which enhance the speaker's credibility.

Diagnosis. Did the introduction increase the listener's desire to hear the speaker? Did the introduction provide the listener with new information about the speaker?

Spontaneity

The antithesis of spontaneity is the script. Skilled professionals can sometimes make the reading of a script seem spontaneous, but more often a "canned" or artificial sound results. For a long time the popular American magazine program "Today" was scripted. Recently the script was abandoned. Ratings rose. Of course, some programs such as dramas require

a script. The uncertainty that comes from unrehearsed speech seems intrinsically interesting to listeners.

Diagnosis. Does this program have a natural, spontaneous sound?

STUDIO TECHNIQUES

Live vs. Tape

Only a few types of program benefit by live presentation -namely those which report directly on events. For example, more people will listen to a live broadcast of a soccer game than to a week-old tape of the game. Same with a Presidential address. Try to avoid giving taped programs the appearance (by including dates, times, etc.) of being such. The audience likes to think that the program they are hearing could be live. They never need know for sure.

Diagnosis. Will people prefer a live broadcast of this program? Do I need to rebroadcast the program, which means that live-only features (e.g. giving the time) would be dysfunctional?

Transitions

Many programs lose casual listeners at transition points within the program. The listener has been paying attention to a certain topic and may be looking forward to a rest--maybe a long one. Good transitions provide both rest and interest-holding features. A unique five-second musical transition is often the best solution. The music provides a change for the listener--a type of rest, and yet holds his attention until the next section has a chance to draw him in.

Another strategy is to move directly into the new topic, program, or segment. After listening to a two-hour game of football, listeners might be inclined to turn off the radio when the predictable string of ads comes

on. As a result, some programmers move right into the next show, capturing the listener's interest before giving him a commercial rest.

Diagnosis. How tired are the listeners? How many got away during the transition? Did the transition provide a pleasurable experience as well as a rest?

Sound Effects

Whole books have been written about sound effects. Let me mention a few simple rules. Sound effects should speak for themselves: the narrative should not repeat them. Too many can be confusing and annoying to the listener. They should be used to speed action by reducing the need for words, or to create a mood. The best sound effect of all is that of a gurgling baby.

Diagnosis. What parts of the script could be replaced by a sound effect?

Music

What types are appropriate when? What effects can be created? How can it smooth transitions? Too often music is used as a background, a pacifier rather than a tool to heighten emotions. Short pieces of music, placed well, can reinforce the emotion of the script. In instructional programming it is surprising to find so little music used that the listener might play at home on his phonograph. To satisfy an organized (captive) listening audience, music should not compose more than ten percent of the program. To attract a casual, open-broadcast audience, music

should make up at least ninety percent of the program. Various splits such as 50/50, 70/30, 40/60 tend to please nobody. The listener motivated to learn gets too little learning. The listener seeking relaxation gets too little entertainment.

Diagnosis. For what purpose is music used in this program? Is the music familiar to the listener?

Volume

The producer usually has no control over the volume at which his program is broadcast. Transmission equipment normalizes the volume, brings lows up to the norm and brings highs down to the norm. This is unfortunate for the broadcaster trying to create dramatic effects. Constant volume lulls the emotions. How can a roaring lion create much fear if he sounds the same as a crying kitten? Absolute sound, a way of increasing the range of broadcast volume, has been proposed by Tony Schwartz (1975).

Diagnosis. How can the range of volumes be increased to reinforce emotions?

Distance from Microphone

Although we have no scientific evidence showing that listeners can perceive slight differences in the distance that a speaker locates himself from the microphone, a number of media performers swear by the "closer-is-better maxim." Watch where singers place it. Observe a talk show host: one way he can establish dominance in relation to his guest is by having his microphone very close and the guests' more remote.

Technicians make adjustments so that volumes are the same. And yet the effect is different. Rule: be as close as you can to the mike without causing hisses and pops.

Diagnosis. Could the speakers move any closer to the mikes?

Production Quality

The only study of production quality (Ellery, 1959) showed no relation to program effectiveness. Apparently, bad splicing, poor mixes and the like matter more to the producer than to the listener.

Diagnosis. Are there any production flaws which make it impossible to understand what is being presented on the program?

PEDAGOGICAL DESIGN

Physical Activity

People listening to radio are free to move about. Producers should capitalize on this unique feature of radio. Physical movement provides a change of pace for the audience, and aids in holding attention. There is no end to the amount of physical exercises that can be used in children's programs. Instructions for adults generally must be more limited, such as looking for certain features in whatever room the listener finds himself.

Students can participate during a radio braodcast in many ways. A technique that has produced dramatic results is to stop a presentation at various points (even in the middle of a sentence) and request the listeners to surmise what the speaker would say next. The radio teacher in Nicaragua's Radio Math Project elicits student participation among first graders by instructing the children to clap their hands a certain number of times, group bottle caps on their desks, sing along with him, stamp their feet, write answers, recite answers, imitate the speaker, and so on.

Diagnosis. What physical activities are likely to be stimulated by the program.

Advance Preparation

Both interest and receptivity can be enhanced if the listener is prepared in advance for what he will hear. Interest is built up in the form of anticipation--curiosity about the program's content can be pricked. By

receptivity I mean that people will more quickly absorb and learn what they hear. Advance preparation to increase receptivity would take the form of providing background information.

Diagnosis. What information related to a particular program was given in advance to the listeners?

Organization of the Content

Few studies exist which test whether logical organization of content facilitates learning, possibly bacause of the difficulty of precisely measuring such a variable. While Leboutet (1956), Niedermeyer (1969), and Brown (1970) found salutary effects of logical sequencing of content, Gagne and Rohwer(1969) reported no measurable differences in learning when parts of a lecture were relocated at random. There are studies which show that if the student is helped to perceive the way a presentation is organized, the amount of learning increases. This help may take the form of: (1) introductions that explain what is to follow (Gagne and Rohwer, 1969; Anderson, 1967; Ausubel and Fitzgerald, 1962); (2) cues that alert the listener to key points (Gagne and Rohwer, 1969; May, 1965; Allen, 1968); (3) explicit designations of major and minor points; and (4) announcements of major transitions.

Diagnosis. Does the listener feel that he knows "where he is" in the program? That is, does he know how what is being discussed or presented at any given point relates to what went before it and what will follow it?

Listener Involvement

Besides being physically active while listening to a program, the listener should be involved mentally as well. A program which requires the listener to exercise his mind will be engaging. In commercial dramas this involvement manifests itself in understanding the plot and characters--"Who did it?" "Why did she treat him that way?" "What will he do next?" Such mental/emotional involvement can be stimulated in non-drama formats as well. The key is to present some new idea or question, some challenging yet understandable problem.

Several studies highlight the effects of eliciting student involvement or participation, both overt (e.g. writing an answer) and covert (doing a mental task). Schramm (1972) cites many studies (e.g. Lumsdaine, 1961; Michael and Maccoby, 1961) to show that active listener participation is the production guideline most consistently and strongly supported in the research literature.

Diagnosis. What thought patterns does this program stimulate?

Familiarity

In general, eighty percent of both the content and the style of a program should be familiar to the audience. If the ratio of old ideas to new ideas drops below 80/20, there may be comprehension/appeal difficulties in communicating effectively with the listener. If the ratio is 95/5, we may bore the listener. It is an art to find the right balance for any given audience.

Diagnosis. What is the ratio of old ideas/information to new ideas/information? How familiar is the style or format of the program?

Segment Independence

Listeners tune in and out. Attention waxes and wanes. Radio programs should be written so a listener can enter at any point and follow what is happening within sixty seconds. Programs can be designed in three or four minute segments, each of which is relatively independent of the other. That means that each segment can by itself deliver an attractive thought, feeling, or bit of entertainment.

Diagnosis. Cut in at five randomly selected points during the program. At each point, how long does it take until you can follow what is being said?

Questions

There is no formula for choosing the correct number and type of questions to be used in a radio program. Rhetorical questions are good as advance cues for program content, yet they don't stimulate thinking in the way that genuine questions do. Generally, questions could be used more liberally than they are.

Probably the most frequently used technique for eliciting mental involvement is to ask questions. Lumsdaine, May, and Hadsel (1958) added four-and-one-half minutes of student participation questions to an eight-and-one-half minute film and found students learning more from the revised, questioning film (13 minutes), than from two viewings of the original version (17 minutes total). Other studies (e.g. Allen, 1970) have recorded the benefits of including questions, some (Shavelson, 1972)

exploring the various effects of question placement (i.e. before or after) and type (lower order or higher order).

Diagnosis. How many questions are used in this program? For what purposes: introduction, emphasis, review, test knowledge, provoke thought, stimulate discussion?

Relation to Other Programs/Activities

No radio program stands alone. It is always heard within a communications environment that may include other programs, printed matter, and interpersonal exchanges. Obviously, the effectiveness of a given program can be increased if the producer takes account of the communications environment, building on what is there.

Diagnosis. How might be or is this program related to other events/trends in the communications environment?

Concentration

Some programs require more concentration than the listener is willing to give. The producer must determine both the optimum amount of concentration to be required and how it should be spaced. In general, radio educators expect too much of the listener, presenting long didactic segments with no rest or breaks. Common sense says that more breaks should be placed in the second half of the program than in the first.

Diagnosis. What percent of the program requires the listener to concentrate? What is the longest unbroken segment that requires concentration?

Information Density

Generally, information density for radio should be at least fifty percent less than for print, depending on the subject--the more technical the subject, the lower should be the information density. By the way, information density means the amount of information per minute.

Diagnosis. How many ideas, facts, or bits of information are presented in the program?

Summaries

How frequently should what has been presented be summarized? The answer is: more than you think. Summaries aid memory as well as helping the listener whose attention may have faded temporarily. For some types of programs, a summary every three or four minutes is not too much.

Diagnosis. How many summaries are there? How are they spaced?

Repetition

As with summaries, audiences can bear more repetition than is usually suspected. Writing for radio requires at least four times more repetition than writing for print, largely because the audience has no way of backtracking to pick up things which were missed the first time through. Of course, it is helpful if the repetition can seem different each time, because the point is illustrated differently, and so on.

Educators generally do not repeat information often enough: they usually underestimate the listener's tolerance for repetition. Some advertisers use formulas to determine the number of times an ad should be

repeated. The validity of such formulas is controversial. Producers need to experiment with the placement of repetition. Sometimes it is best to distribute it throughout the presentation; sometimes it should be massed at the end.

Diagnosis. How many times is the program's main message repeated?

Drama

Nearly every educational program could benefit from a touch of drama, which of course does not necessarily mean using actors, stories, and so on. Drama is tension created by conflict of some sort. The clash of differing opinions can be dramatic. Inquiry--a battle with the unknown--can be dramatic. Often the educator fails to derive benefit from inherently dramatic problems simply by not identifying explicitly the nature of the conflict. For example, the dramatic element behind information about farm practices is the battle against nature, the struggle to survive.

Diagnosis. Does the program contain abstract concepts which are not illustrated?

Message Type

Some programs stimulate the listener to think analytically better than others. Those which aim merely to deposit certain information are not among them. To induce original, creative thought the producer must do more than prescribe and inform. Using open-ended questions, non-rhetorical questions, dialogue, debate and other techniques, the producer

can stimulate the listener to think for himself.

Diagnosis. Does the program contain "all the answers"?

Feedback

Not every program need aim at stimulating independent thinking. Sometimes it is appropriate to convey hard, objective information in a straightforward way. For such programs it is wise to give the listener feedback on how well he is retaining and understanding what is being taught. This means testing the listener's knowledge with questions and immediately giving the answers, which allows the listener to check his performance. Many studies show that corrective feedback does enhance learning (Lumsdaine, 1963; Anderson, 1967; Michael and Maccoby, 1961; Tobias, 1973). There is some evidence indicating that corrective feedback should be immediate and precise (i.e. the correct answer should be given in full).

Diagnosis. At the end of the program does the listener have any way of knowing how much he has learned?

Emotions

Just as a single program can vary its pace, speakers and volume, it can also vary in emotional tone. So many educational programs are actually devoid of expressions of emotion or emotional situations. The best programs have a variety of moods and emotional tones. This change creates interest and holds attention.

Diagnosis. What are the emotions expressed in this program?

CONCLUSION

In this paper we have been looking at program characteristics which the producer can manipulate to achieve a desired effect. My comments have been based on experience plus a review of the prescriptive texts on radio production. Someday decisions about program design may be made more on the basis of scientific evidence than on experience and intuition. For now, the number of studies on program design are few, and of questionable value, given the situation specific nature of radio broadcasting. The available research evidence can be helpful, however, in stimulating producers to do their own informal experimentation, to go beyond their usual approaches.

Not all of the diagnostic questions presented here are relevant for every type of program or for every cultural context. The job of the individual producer is to select those questions which are appropriate to the program he wishes to improve and the audience he wishes to reach, and then to apply these systematically to analysis of actual program segments. Repeated application of this procedure will lead to more efficient and useful analysis. By thus increasing our awareness of the dynamics of program-audience interaction, we may hope to produce increasingly effective educational radio.

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